



BLOOD TRANSFUSION IN OBSTETRICS PRACTICE IN PAKISTAN

Adapted for Pakistan from the Green top RCOG guideline No: 20a, 2006

By the Guideline Committee of SOGP through consensus & literature review

Reviewed by: The executive Body of SOGP

Endorsed by: The CPSP

1. Purpose and Scope:

Obstetric conditions associated with the need for blood transfusion may lead to morbidity and mortality if not managed correctly. The increasingly important issues in blood transfusion are adverse events associated with transfusion, including potential infection and potential transmission of infection, rising costs and the possible future problems of availability. Unfortunately, information from randomised controlled trials to inform best practice is largely unavailable in the discipline of blood transfusion.

In Pakistan masses at large do not have access to standard antenatal, intrapartum or postpartum care. This has resulted in a very high incidence of maternal morbidity and mortality due to haemorrhage associated with pregnancy. Antepartum haemorrhage is responsible for perinatal morbidity in large number of cases.

Recent Pakistan Demographic Health Survey (PDHS) has reported maternal mortality as 276/100,000 maternities. Haemorrhage is responsible for 32% cases (27% PPH + 5% APH).

The aim of the guideline is to provide guidance to users of blood components in obstetrics & gynaecological practice in Pakistan.

The stress will be on appropriate used of blood & blood components, not too little or too much, special emphasis will be on how to minimize the need of blood to pregnant mothers by regular

monitoring of haemoglobin levels during pregnancy and improving the levels by the use of oral or parenteral supplements where needed.

Based on these guidelines protocols will be prepared to be used in all the obstetric & gynaecology units in the country to disseminate locally.

2. Background:

Obstetric haemorrhage remains a major killer of mothers & babies. This is mostly attributed to unsafe practices of handling obstetric cases by poorly trained medical attendants or untrained Para-medicals. In addition to this the non-availability of safe blood & blood components in most of the small maternity homes, even in secondary / tertiary public sector health care centre in urban areas, not to mention the pathetic situation in rural sectors, compounds the problems.

Retrospective analysis of the clinical scenarios by the RCOG group has suggested that “women at high risk of loosing greater than 1000 ml of blood should be strongly advised to deliver in a setting where blood transfusion and intensive care facilities are available” [Evidence Level III]

Blood safety is a major issue which has significant clinical implications in Pakistan, because of lack of uniform standards of blood banking in Pakistan. Keeping this in mind the transfusion of blood in obstetric practice & its importance as a life saving procedure is not without risk. Recipient may develop transfusion transmitted infections particularly hepatitis in our country & HIV globally, or will suffer immunological squeals. Mismatched blood transfusion is a major risk. Strict adherence to correct sampling, cross match and administration procedure is to be followed even in acute obstetrical emergency situations.

3. How can the chance of transfusion be reduced?

Anaemia should be treated after diagnosis in antenatal period.

If haemoglobin is less than 10.5 gm/dl in the antenatal period, haematinic deficiency should be suspected provided the possibility of haemoglobinopathies is being ruled out.
Most common cause of anaemia in Pakistan is Iron deficiency or mixed Iron & folic acid

deficiency. The common factor is nutritional deficiency.

Oral Iron in the form of ferrous sulphate containing 60 mg elemental Iron is first choice of treatment, depending on the period of gestation.

Parenteral Iron therapy with Iron-sucrose is indicated when oral Iron can not be tolerated, absorbed or patient compliance is in doubt.



Parenteral Iron-sucrose is given in multiple doses. The response is quicker within 3 weeks; rise in 1 gm of haemoglobin is expected.

- Recombinant human erythropoietin (rHuEPO) is mostly used in the anaemia of end-stage renal disease. rHuEPO has been used both antenatally and postpartum in women without end-stage renal disease without any adverse maternal, fetal or neonatal effects.

- Use rHuEPO in clinical practice for non-end-stage renal anaemia is still to be established and should only be used in the context of a controlled clinical trial.



- Anaemia not due to haematinic deficiency should be managed by blood transfusion in collaboration with haematologist.



- Blood loss at delivery should be minimized.



- Active Management of 3rd stage of labour is recommended to be adopted by doctors, midwives & nurses who ever is conducting the delivery.



- Women at high risk of APH or PPH e.g. patients with pre-eclampsia, or past H/O pre-eclampsia or eclampsia, family H/O hypertension grand multiparas, multiple pregnancy, hydrops fetal polyhydramnios & previous H/O PPH should be delivered in a health care facility, where proper blood transfusion facilities are available.



Proper & timely management of patients on anticoagulants e.g. (Low Molecular Weight Heparin) LMWH or warfarin.

4 . General Principles of Blood Transfusion

All women should have their blood group and antibody status checked at booking and at 28 weeks of gestation [National Collaborating Centre for Women's and Children's Health, 2003], Level III.

B

Women should have a group-and-save or cross match sample taken according to a locally agreed and regularly monitored maximum surgical blood ordering schedule (MSBOS), depending on the obstetric diagnosis.

C

If any blood component therapy is contemplated, a sample for group & save must be sent to the blood transfusion laboratory. For healthy women no need to save or cross match blood for LSCS Nice Guidelines suggest that all screening, save & cross match should be done locally not form outside labs. [Evidence level IV]

If not possible transport and local storage should be at temperature between 2-4 °C.

Patient blood samples used for cross matching red cells should not be more than 7 days old.

C

Red cell alloimmunisation is most likely to occur in the last trimester, therefore no pretransfusion sample should be more than 7 days old and ideally should be fresh.

Cytomegalovirus (CMV) seronegative red cells and platelets should be used for CMV seronegative pregnant women.

C

Urgent transfusion should not be delayed if CMV seronegative components are not immediately available.



For women with known placenta praevia, 2 units of cross matched red cells available in the issue fridge. These units should be replaced every week by newly cross matched blood.



Preferably siblings and husband's blood should not be transfused to pregnant women. Their donated blood should be placed by other family member's donated blood available.

Rhesus Blood group and red cell antibodies should be determined in early pregnancy [A]
Evidence based 2 edition

If financially not possible recheck at 28 weeks if at booking antibodies are not positive.

Morbidly adherent placenta to be checked in New guideline 27 with generator backup & regular monitoring of temp.

5. What are the Strategies to minimize the use of banked blood

In pregnancy pre-autologous deposit is not recommended.



6. How can major haemorrhage be managed

- There should be clear protocols on who to manage major obstetric haemorrhage.
- Multidisciplinary approach with involvement of consultant obstetrician, anaesthetist, haematologist and staff of Blood Bank.
- Protocols should be demonstrated to all health care team member.



Regular "fire drills" to be done to assess that SOPs (Standard Operative Procedures) are practiced even in acute emergency situation.

Massive blood loss may be defined as the loss of 1 blood volume within a 24-hour period. Normal blood volume in the adult is taken as approximately 7% of ideal body weight.²⁴ Other definitions include 50% blood volume loss within 3 hours or a rate of loss of 150 ml/minute.

What blood components can be used for obstetric Haemorrhage

Red Cells When red cells should be used? Group specific compatible blood can be provided within 10 min plus transport time.

C

C

In extreme emergency, non-booked patient & blood group not known, O –ve red cells should be given.

There are no definite criteria when to transfuse packed cells

Decision depends on the clinical judgment and also on the haematological reports. General consensus is when haemoglobin is more than 10 gm/dl, blood transfusion is not indicated. If haemoglobin is 6 gm/dl blood transfusion is always indicated.

Indications for fresh frozen plasma (FFP) and cryoprecipitate

On admission before transfusion in a bleeding patient, blood should be tested for CBC & Coagulation profile & FFP, platelets & Cryoprecipitate should not be given on clinical suspicion.

Infusion of FFP should be considered before excess blood volume is lost

In the bleeding woman with Disseminated Intravascular Coagulation (DIC), a combination of FFP, Platelets and Cryoprecipitate is indicated.

C

FFP and Cryoprecipitate should be of same blood group as the recipient.

B

If not available then FFP of different blood group is acceptable provided it does not have a high titre of anti-A or Anti-B activity.

No anti-D prophylaxis is required if an Rh-D negative woman receives Rh-D positive FFP or cryoprecipitate.

B

Fibrinogen level should be maintained above 1.0 gm/dl by the use of FFP or two pools of cryoprecipitate.

C

There is insufficient evidence to suggest that FFP is useful in major blood loss in the absence of DIC. Its use should be guided by the use of coagulation tests.

B

DIC should be suspected when there is profuse bleeding from the site of trauma and oozing from the sites of venepuncture and intravenous line insertions.

Causes of DIC in obstetrics include:

- Septic induced abortion
- Abruptio placentae
- Amniotic fluid embolism
- Pre-eclampsia
- Shock
- Retained dead fetus.

There are no data to substantiate transfusion triggers for clotting factors but common practice is to administer FFP 12-15 ml/kg to keep the activated partial thromboplastin time (APTT) and prothrombin time ratios less than 1:5. If DIC is strongly suspected and clotting studies take a long time, transfusion of FFP should be considered before results are available if haemorrhage is otherwise difficult to control

Evidence
Level IV

Clinically significant fibrinogen deficiency develops after a loss of about 150% of blood volume – earlier than any other haemostatic abnormality when packed red cell concentrates are used in replacing major blood loss.

When should Platelets be Transfused

Platelets should not fall below $50 \times 10^9/L$ in acutely bleeding patient.

C

A platelet transfusion trigger of $75 \times 10^9/L$ is recommended to provide a margin of safety.

C

The need of platelet transfusion should be requested locally well before actual need. Rh-D negative woman should received. Rh-D negative platelets; they should ideally be group compatible.

B

Anti-D immunoglobulin at a dose of 250 iu will be sufficient to cover five adult therapeutic doses of platelets given within a 6-week period. Doses may be given subcutaneously to minimise bruising and haematomata in women with thrombocytopenia.

B

Platelets should be given via a platelet giving set or a new giving set not the same through which red cells have been given.

Pharmacological Strategies:

Role of r factor VII a

May be considered as a treatment for life threatening PPH, but should not replace essential surgical procedure nor it should delay procedure required for referral to tertiary care unit.

C

No evidence to support prophylactic use of recombinant factor VII a to reduce blood loss for cesarean section.

✓

For Intractable PPH, haematologist should be consulted for the administration of recombinant factor VII a

C

The availability and use of r factor VII a is limited, owing to its financial cost. The local haematology department should develop a protocol for its use and also for its availability in pharmacy / blood Bank Stock in case of bleeding emergency.



Factor VII has a central role in initiating the process of blood coagulation. It has been used effectively in intractable bleeding insipite of replacement of FFP & Platelets. [Evidence Level III]

7. How to manage Intrapartum Anaemia

If haemoglobin is less than 7 gm/dl in labour blood needs to be transfused according to individual's clinical evaluation.



8. How should Anaemia be managed in Postpartum Period

If Hb is less than 7 – 8 gm and there is no threat of bleeding. Decision based on an informed patient decision. A fit, healthy, asymptomatic woman does not benefit with blood transfusion



If unexpected severe bleeding is encountered, investigations should be made postnatally into possible bleeding diatheses. These investigations should be performed on a non-urgent basis at least 3–6 months after delivery.



9. How should a woman who refuses blood transfusion be managed

- Haemoglobin should be optimised before delivery and planned surgery.
- Patient information leaflets to be developed regarding blood transfusion.

Reference:

1. Green top RCOG guideline No. 47, Dec 2007.
2. Gooch A, Parker J, Wray J, Qureshi H, Guideline for blood grouping and antibody testing in pregnancy. London (U.K.): British committee for standards in Haematology (BCSH); 2006, 22 P.
3. The Cochrane Library including the data base.
4. The search words included “obstetrics and blood transfusion articles during last 10 years were searched.
5. The National Library for Health and the National Guidelines Clearing House were also searched for relevant guidelines and reviews.
6. Pakistan Demographic Health Survey 2007.
7. National Guidelines for Blood Transfusion in obstetrics in Pakistan.
8. The National Institute for Health & Clinical Excellence (NICE) Guidelines.
9. British Committee for Standards in Haematology Blood Transfusion Task Force. Guidelines for the use of FFP, cryoprecipitate and cryosupernatant. *Br J Haematol* 2004;126:11–28.
10. Stainsby D, MacLennan S, Thomas D, Isaac J, Hamilton PJ. British Committee for Standards in Haematology. Guidelines on the management of massive blood loss. *Br J Haematol* 2006;135:634–41.
11. Hardy JF, De Moerloose P, Samama M. Massive transfusion and coagulopathy: pathophysiology and implications for clinical management. *Can J Anaesth* 2004;51:293–310.

APPENDIX

Clinical guidelines are: ‘systematically developed statements which assist clinicians and patients in making decisions about appropriate treatment for specific conditions’. This guideline is prepared in the same format as green top guideline of RCOG on the subject “Blood Transfusion in Obstetrics”. This is slightly modified according to the local facilities & management option in low resource country like Pakistan. It should be utilized with reference to individual patient need & health care facility status.

The evidence used in this guideline was graded using the scheme below and the recommendations formulated in a similar fashion with a standardised grading scheme.

Level of Evidence	Grade of Recommendation
Ia Evidence obtained from meta-analysis of randomised controlled trials	Grade A (evidence levels Ia, Ib) Requires at least one randomised controlled trial as part of the body of the literature of overall good quality and consistency addressing the specific recommendation
Ib Evidence obtained from at least one randomised controlled trial	
IIa Evidence obtained from at least one well-designed controlled study without randomization	Grade B (evidence levels IIa, IIb, III) Requires availability of well-conducted clinical studies but no randomised clinical trials on the topic of recommendation
IIb Evidence obtained from at least one other well-designed quasi-experimental study	
III Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case-control studies	Grade C (evidence level IV) Requires evidence from expert committee reports or opinions and/or clinical experience of respected authorities. Indicates absence of directly applicable studies of good quality
IV Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities	